Mindfulness Meditation and Relapse Prophylaxis in Mood Disorders

Zindel V. Segal, PhD
Distinguished Professor of Psychology in Mood Disorders
University of Toronto Scarborough
Financial Disclosures for Dr. Zindel Segal

• Co-developer of Mindfulness Based Cognitive Therapy and receives royalties from Guilford Press for the MBCT treatment manual and patient books.

• Has presented keynote addresses at conferences and MBCT clinical training workshops where he has received a fee.

• Co-founder of MindfulNoggin Inc., an online digital platform for MBCT dissemination.

Psychotherapy Is As Good As Drug in Curing Depression, Study Finds
Early Evidence of Prophylaxis via Acute Phase Cognitive Therapy (Evans et al, 1992)

[Graph showing the percentage of first relapse over months in follow-up for different treatment groups: Drug, No Continuation (n=10), Drug Plus Continuation (n=11), Cognitive Therapy (n=10), and Combined Cognitive-Pharmacotherapy (n=13). The graph indicates lower relapse rates for the combined therapy group.]
Depression: Course and Outcome

<table>
<thead>
<tr>
<th>Treatment Phases</th>
<th>Acute</th>
<th>Continuation</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom Syndrome</td>
<td></td>
<td></td>
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<tr>
<td>Well</td>
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<tr>
<td>Progression</td>
<td></td>
<td></td>
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<tr>
<td>Response</td>
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<td></td>
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<tr>
<td>Improvement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remission</td>
<td>⬤</td>
<td></td>
<td></td>
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<tr>
<td>Recovery</td>
<td>⬤</td>
<td></td>
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</tr>
<tr>
<td>Relapse</td>
<td>⬤</td>
<td>⬤</td>
<td></td>
</tr>
<tr>
<td>Recurrence</td>
<td>⬤</td>
<td>⬤</td>
<td>⬤</td>
</tr>
</tbody>
</table>

Kupfer DJ. 1991
Early Evidence of Psychological Prophylaxis Against Depressive Relapse (Frank et al., 1990)

Outcome of the maintenance therapies in recurrent depression protocol. Open circles represent group that underwent medication clinic and active imipramine; solid circles, interpersonal psychotherapy and active imipramine; squares, interpersonal psychotherapy alone; solid triangles, interpersonal psychotherapy and placebo; and open triangles, medication clinic and placebo.
Funded to develop maintenance CBT

Best evidence for a treatment target pointed to dysphoria-linked cognitive elaboration
Cognitive Reactivity Shortens Time to Depressive Relapse

Segal et al., 2006
I asked my sister to look after my son so that my husband and I could go out for dinner. She said no. She said I should spend more time with him now that I am back from the hospital.

<table>
<thead>
<tr>
<th>Situation</th>
<th>Emotion 0 - 100%</th>
<th>Automatic Thought (AT)</th>
<th>Evidence to support your AT</th>
<th>Evidence Against your AT</th>
<th>Balanced/Alternative Viewpoint</th>
<th>Re-rate Mood 0 – 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>I asked my sister to look after my son so that my husband and I could go out for dinner. She said no. She said I should spend more time with him now that I am back from the hospital.</td>
<td>Guilty 70%</td>
<td>I am a bad mother.</td>
<td>My son said he is worried about me. My husband is doing most of my chores.</td>
<td>Having depression doesn’t automatically make me a bad mother. When I condemn myself it is often the depression speaking.</td>
<td>Guilty 40%</td>
<td></td>
</tr>
</tbody>
</table>
Self-Distancing
Decentering
Meta-Cognitive Awareness
Defusion
Observing Ego
MBCT – Three Main Hypotheses:

1. Mindfulness Meditation Offers Direct Training in Decentering
2. Decentering is anti-ruminative
3. Lower levels of rumination are associated with greater depression prophylaxis.
Gradient of Attentional Focus in Mindfulness Training

Tangible

- Mindful Eating
- Body Scan
- Mindful Walking or Stretching

Intangible

- Sitting with the Breath
- Sitting with Sounds
- Sitting with Thoughts
- Sitting with a Difficulty
MBCT Session Content

S1: Awareness and Automatic Pilot
S2: Living in our Heads
S3: Gathering the Scattered Mind
S4: Recognizing Territory of Aversion
S5: Allowing / Letting Be
S6: Thoughts Are Not Facts
S7: Taking Best Take Care of Myself
S8: Maintaining and Extending New Learning
Figure 2: Survival curves (of not relapse or recurrence) over a 24-month follow-up period for the intention-to-treat population.

m-ADM = maintenance antidepressant medication. MBCT-TS = mindfulness-based cognitive therapy with support to taper or discontinue antidepressant medication.
Cumulative proportion of patients who survived without relapse during 18 month follow-up

Placebo group has lowest overall survival

Segal et al., 2006
31% reduction in relapse risk
Prevention Treatments Permit Studying Mechanisms of Change
(N=166)

Relapse rate: 22% MBCT, 21% CBT

Farb et al., 2018
Change in 3 Latent Factors Post CBT/MBCT Over 2 Years

Segal et al., 2019
High and Low Decentering Growth Predicts Relapse/Recurrence Over 2 Years (HR=.232)

Segal et al. 2019
(When) Does Practice Matter?

Course Practice

Follow-Up Practice

Decentering

Relapse

0.31*

0.42*

0.22*

0.02
Reconsidering Our Hypotheses I:

Mindfulness meditation offers direct training in decentering and so does CBT. **If taught that way!**

Growth in decentering, **via CBT or Mindfulness** provides greater depression prophylaxis.

How does this square with the neuroscience of depression risk following prevention treatment?
Neural Reactivity to Dysphoric Mood Induction

Neutral Clips
HGTV (Crafts & Gardening)

Sad Clips
The Champ
Terms of Endearment

Somatosensory (body surface)

Insula (interoception)

Farb et al., 2010

Insula Reactivity (% Signal Change)

Beck Depression Inventory

$r = -0.47$
Neural Reactivity to Dysphoric Mood Induction

Neutral Clips
HGTV (Crafts & Gardening)

Sad Clips
The Champ
Terms of Endearment

Vs.

Farb et al., 2022
Neuroimage Clinical
Main Effects of Relapse Status on Neural Reactivity to Dysphoric Mood Induction

A) Regions sensitive to future relapse status.

B) Boxplot of pre/post right somatosensory reactivity.

C) Survival curves as a function of average right somatosensory reactivity.
**Effects of Time (Pre/Post Intervention) on Neural Reactivity to Dysphoric Mood Induction within the Non-Relapser Group**

A. Regions demonstrating reduced reactivity over time.

B. Boxplot of left lateral prefrontal cortex (LPFC) change scores over time.

C. Survival curves as a function of change in left LPFC change scores.
Sense Foraging Promotes Sensory Processing

TASTE
HEARING
SIGHT
SMELL
TOUCH
## Sense Foraging Requires Access Points

<table>
<thead>
<tr>
<th></th>
<th>Autonomous</th>
<th>Supported</th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>High Access</td>
<td>Low Access</td>
<td>High Access</td>
<td>Low Access</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>Savoring walk in the park</td>
<td>Mountain Climbing</td>
<td>Touring a botanical garden</td>
<td>Guided mushroom foraging</td>
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<tr>
<td>Exercise</td>
<td>Brisk walk in the park</td>
<td>Surfing</td>
<td>Neighborhood running group</td>
<td>Circuit training with a coach</td>
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<tr>
<td>Art</td>
<td>Adult colouring books</td>
<td>Visit the Louvre</td>
<td>Pottery or winetasting class</td>
<td>In-person masterclass</td>
<td></td>
</tr>
<tr>
<td>Travel</td>
<td>Visit a tourist destination in your own town</td>
<td>Visit a tourist destination in a foreign land</td>
<td>Take a historic tour of your local neighborhood</td>
<td>Go on a guided trek to a remote part of the world</td>
<td></td>
</tr>
<tr>
<td>Meditate</td>
<td>Personal practice</td>
<td>Silent retreat</td>
<td>Meditation app or recording</td>
<td>MBSR, MBCT</td>
<td></td>
</tr>
<tr>
<td>Psychedelics</td>
<td>Unguided trip at home</td>
<td>Unguided trip at a retreat or foreign clinic</td>
<td>Guided trip, off-label (e.g., ketamine clinic)</td>
<td>Guided trip, at a retreat or foreign clinic</td>
<td></td>
</tr>
</tbody>
</table>
Reconsidering Our Hypotheses II:

• Dysphoria-evoked sensory deactivation contributes to episode return.

• Vulnerability may be mitigated by targeting prefrontal regions responsive to clinical intervention.

• Emotion regulation during recovery may be enhanced by reducing prefrontal cognitive processes in favour of sensory representation and integration.

• Hard to know if these strategies apply to less clinically indicated samples.